REMARKS/ARGUMENTS

This Amendment and Response to Final Office Action is being submitted concurrently with a Request for Continued Examination ("RCE") and the requisite fee. Claims 79-115 are pending in this application for consideration. Claims 1-78 have been canceled, and new claims 79-115 have been added.

The present invention is directed to a system and method for providing network processing and stored data access that is configured to be fully scalable and/or fully survivable. At least two servers are provided that operate to process different user requests. That is, a first server processes a first user request and a second server processes a second user request. Each of the servers applies at least one application when processing the user requests. The servers are connected to a switch, which is in turn connected to one or more data storage devices. Each of the data storage devices contains data associated with at least one of the applications running on the servers.

In one aspect of the invention, the system is fully "scalable" in the sense that additional servers can be added to the system as demand for a particular application increases, without adding additional data storage devices. Conversely, servers can be removed from the system without removing data storage devices. In a similar manner, additional data storage devices can be added to the system as storage requirements for a particular application increase, without adding additional servers. Conversely, data storage devices can be removed from the system without removing servers. Thus, the system is scalable to increase or decrease server capacity without changing the data storage capacity, and/or is scalable to increase or decrease data storage capacity without changing the server capacity.

In another aspect of the invention, each of the servers applies substantially the same application(s) when processing the user requests, and each of the data storage devices contains substantially identical data associated with the application(s) running on the servers. The system is fully "survivable" in the sense that, if any one of the servers fails, user requests can be processed by any of the other servers in the system that are operable. Likewise, if any one of the data storage devices fails, substantially identical data can be retrieved from any of the other data storage devices that are operable. Thus, the system is survivable and able to process user requests associated with a particular application in the event of a failure of a server, and is survivable and able to retrieve data associated with a particular application in the event of a failure of a data storage device.

Rejections Under 35 U.S.C. § 102

In the Final Office Action dated November 6, 2001, the Examiner rejected claims 1, 3, 10-15, 19-27, 31-34, 36-39, 42-44, 46, 47, 59, 60, 63-70, 73, 74, 75, 77 and 78 under 35 U.S.C. § 102 (e) as being anticipated by U.S. Patent No. 5,699, 503 to Bolosky et al. ("Bolosky"). Bolosky discloses a media server system, such as a video-on-demand system in which video image sequences (*e.g.*, a movie) are transmitted from the system to subscribers in response to user requests. As shown in Fig. 2, the system includes a controller and at least three subsystems, wherein each subsystem comprises a single microprocessor and an associated pair of data storage devices (although a different number of data storage devices may be employed). Bolosky, col. 5, l. 61 to col. 6, l. 23. In operation, the controller cooperates with the subsystems to schedule the transmission of video image sequences stored on the data storage devices to the subscribers. Id.

The video image sequences are stored on the data storage devices by dividing them into sequential blocks of data and "striping" them across the primary portions of the data storage devices. Bolosky, col. 6, ll. 40-43. "Striping" refers to the method in which a first block of data is stored on a first data storage device and each sequentially following block of data is stored on the next sequential data storage device. Bolosky, col. 6, ll. 46-49. When reaching the last data storage device, the next block of data wraps around and is stored on the first data storage device. Bolosky, col. 6, ll. 49-51. This continues until all the blocks of data are stored across the data storage devices. Bolosky, col. 6, ll. 51-53.

After the blocks of data are stored on the primary portions of the data storage devices, "declustered mirroring" is used to store a copy of this same data on the secondary portions of the data storage devices. Bolosky, col. 6, ll. 57-61. An example of "declustered mirroring" is shown in Fig. 3D. In this example, a block of data stored on the primary portion of a data storage device of a first subsystem (*e.g.*, "Subsystem 1, SD1, Block A") is divided into two sub-blocks of data, wherein the first sub-block of data is stored on the secondary portion of a data storage device of a second subsystem (*e.g.*, "Subsystem 2, SD3, Sub-Block A1") and the second sub-block of data is stored on the secondary portion of a data storage device of a third subsystem (*e.g.*, "Subsystem 3, SD5, Sub-Block A2"). Bolosky, col. 9, lines 14-34. In the event of a failure of the first subsystem, the two sub-blocks of data can be transmitted from the second and third subsystems to the subscribers. Id.

New independent claims 79, 82, 91, 102, 104 and 106 (and dependent claims 80-81, 83-89, 92-97, 103, 105 and 107-113) of the present invention, which are directed to the

"scalability" aspect of the invention,[1] each include the limitation that the server(s) operate independently of the data storage device(s) so as to permit: (1) the addition (or removal) of a server without the addition (or removal) of a data storage device (*e.g.*, as demand for a particular application increases or decreases); and/or (2) the addition (or removal) of a data storage device without the addition (or removal) of a server (*e.g.*, as storage requirements for a particular application increase or decrease). Bolosky does not disclose or suggest this limitation for at least two reasons.

First, in Bolosky, each microprocessor is associated with its own corresponding data storage devices. For example, in the embodiment shown in Fig. 3D, the microprocessor of subsystem 1 is associated with data storage devices SD1 and SD2, the microprocessor of subsystem 2 is associated with data storage devices SD3 and SD4, etc. Thus, the microprocessors do not operate independently of their corresponding data storage devices.

Second, the processing capacity of the Bolosky system cannot be increased (or decreased) by the addition (or removal) of a microprocessor without the addition (or removal) of a data storage device. Instead, it would be necessary to add (or remove) both processing and data storage capacity.

Bolosky does not even attempt to address the need for full scalability, and in fact teaches against the present invention by specifically teaching that each microprocessor has associated data storage devices. Thus, because Bolosky does not disclose or suggest servers operating independently of data storage devices, these claims are patentable over Bolosky.

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[1] Dependent claims 86-88, 103, 109, 111 and 113 are also directed to the "survivability" aspect of the invention.

New independent claims 98 and 114 (and dependent claims 86-88, 99-101, 103, 109, 111, 113 and 115) of the present invention, which are directed to the "survivability" aspect of the invention,[2] each include the limitation that: (1) at least two servers apply substantially the same application such that, in the event of a failure of either of the servers, any subsequent user requests will be processed by any other of the servers that are operable; and (2) each of the data storage devices stores substantially the same data such that, in the event of a failure of any one of the data storage devices, the data is accessible from any other of the data storage devices that are operable. Bolosky does not disclose or suggest this limitation. For example, in Bolosky, each of the data storage devices do not store substantially the same data in order to ensure survivability of the system. In fact, the "striping" and "declustered mirroring" processes of Bolosky are designed such that each of the data storage devices store a different set of data for survivability purposes. Therefore, these claims are also patentable over Bolosky.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 4-9, 16 and 28 under 35 U.S.C. §103(a) as being obvious over Bolosky. The Examiner also rejected claims 17, 18, 29, 30, 35, 40, 41, 45, 48-58, 61, 62, 71 and 72 under 35 U.S.C. § 103(a) as being obvious over Bolosky in view of U.S. Patent No. 4,914,570 to Peacock ("Peacock"). However, for the reasons stated above with respect to the § 102 rejection, new claims 79-115 are distinguishable from Bolosky and/or Peacock.

In view of the foregoing amendment and remarks, it is respectfully submitted that the claims are now in condition for allowance and eventual issuance. Such action is respectfully requested. Should the Examiner have any further questions or comments which need be

[2] Dependent claims 86-88, 103, 109, 111 and 113 are also directed to the "scalability" aspect of the invention.

addressed in order to obtain allowance, he is invited to contact the undersigned attorney at the number listed below.

Respectfully submitted,

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